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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/511,316 02/23/00 SAITO

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EXAMINER

IM52/0918

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ART UNIT

PAPER NUMBER

1755

DATE MAILED:

09/18/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/511,316

Applicant(s)

SAITO, YASUYOSHI

Examiner

C. Melissa Koslow

Art Unit

1755

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2001 and 19 July 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13, 14 and 19-29 is/are rejected.
- 7) ☒ Claim(s) 15-18 is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☒ The proposed drawing correction filed on 21 June 2001 is: a) ☐ approved b) ☒ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 18) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____.

Art Unit: 1755

This action is in response to applicants' amendments of 21 June 2001 and 19 July 2001. The objections to the disclosure with respect to the tables and page 17 are withdrawn due to the amendments to the specification. The objection to the disclosure and 35 USC 112 rejections with respect to composition of the material as discussed in lines 1-10 in the fifth paragraph on page 2 of the office action are withdrawn due to the amendments to the claims. The art rejections over Hofmeister et al, the article by Hofmeister et al and Güther et al are withdrawn due to the amendments to the claims. Applicant's arguments with respect to the remaining rejections have been fully considered but they are not persuasive.

The Japanese references, cited in the Information Disclosure Statement of 21 June 2001, were considered with respect to the provided English abstracts.

The proposed drawing correction filed on 21 June 2001 has been disapproved because it is not in the form of a pen-and-ink sketch showing changes in red ink or with the changes otherwise highlighted. See MPEP § 608.02(v).

The disclosure is objected to because of the following informalities: Applicants have clarified that Cu, Li and Ta both substitutional agents and sintering aids. For example, Cu, Li and Ta are sintering aids for $\text{Li}_x(\text{K}_{1-y}\text{Na}_y)_{1-x}(\text{Nb}_{1-z}\text{Ta}_z)\text{O}_3$. It is unclear what is the inventive composition if A is Li and the additive is Li. In the disclosed process, it is unclear what is meant by "a mixture powder represented by a composition formula ANbO_3 ", the actual niobate, as in example 1, or a mixture of precursor compounds for the niobate, as in example 2. In addition, it is unclear the form of the additives, elemental, as implied by the majority of the specification, or as a compound, as taught by the examples. Appropriate correction is required.

Art Unit: 1755

Applicants' amendments and claims did not overcome these objections. They are maintained.

Claims 26-28 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

The negative limitations in these claims are not supported by the specification. Any negative limitation or exclusionary proviso must have basis in the original disclosure. See *Ex parte Grasselli*, 231 USPQ 393 (Bd. App. 1983), *aff'd mem.*, 738 F.2d 453 (Fed. Cir. 1984). There is nothing in originally-filed disclosure need to convey to one of skill in art that applicant had possession of concept of what is claimed in order to satisfy description requirement. See *Ex parte Parks*, 30 USPQ2d 1234, 1236 (Bd. Pat. App. & Inter. 1993).

Claims 13 and 19-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claimed composition and process are indefinite for the reasons given above. In claims 26-28, the definitions for the x and z ranges are different from those in claim 15. In addition, the list of excluded values includes values that are outside the range of x, as defined by claim 15.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Art Unit: 1755

Claims 13, 19-21 and 25 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by the abstract for JP 55-55589 or Henson et al.

Both of these references teach a piezoelectric alkali metal niobate composition containing lithium as an additive. The compositions are produced by adding lithium carbonate to a mixture powder containing niobium pentoxide and an alkali metal carbonate, such as sodium carbonate; molding and sintering the mixture and giving the sintered article piezoelectricity by poling. The abstract teaches atmospheric pressure sintering and Henson teaches mechanically pressed sintering. Since the type of sintering furnace is not defined, this means a conventional electric sintering furnace was used. It is standard practice in the art not to define the type of furnace unclear is not a non-conventional one or if the method of heating is not the conventional method. The claimed composition and method clearly read upon the taught compositions and methods.

Applicants' arguments are not convincing. The porcelain of JP 55-55589 is a piezoelectric material, which is produced by sintering. Thus it is a niobate-based piezoelectric sintering material composition. The ceramic, which is a sintering material composition, of Henson et al is taught as piezoelectric in Summary and Conclusions section of the article. While applicants are correct the reference does not teach the effect of copper and the combination of lithium and tantalum, the rejected claims are not limited to these two embodiments. The rejected claims include the embodiment taught the references. The arguments did not address embodiment of the claims. The rejection is maintained.

Claim 14 is are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 55-55589.

As stated above, this reference teaches teach a piezoelectric alkali metal niobate composition containing lithium as an additive. The taught niobate to which the lithium is added

Art Unit: 1755

has the formula $K_{1-x}Na_xNbO_3$, where x is 0.5-0.98. The taught amount of Na overlaps the claimed ranges. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). The reference suggests the claimed composition.

Claims 15-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 22-24 and 29 would be allowable if rewritten or amended to overcome the rejection under 35 U.S.C. 112, second paragraph, set forth in this Office action.

There is no teaching or suggestion in the cited art of record of a piezoelectric sintering material comprising $K_{1-x}Na_xNbO_3$, where x is 0-0.8 and 0.001-5 mol% Cu as an additive. There is no teaching or suggestion in the cited art of record of a piezoelectric sintering material comprising $Li_x(K_{1-y}Na_y)_{1-x}(Nb_{1-z}Ta_z)O_3$, where x is 0.001-0.2, y is 0-0.8 and z is 0-0.4 and at least one additive of Cu, Li and Ta.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

Art Unit: 1755

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (703) 308-3817. The examiner can normally be reached on Monday-Thursday from 7:30 AM to 4:00 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Bell, can be reached at (703) 308-3823.

The fax number for Amendments filed under 37 CFR 1.116 or After Final communications is (703) 872-9311. The fax number for all other official communications is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661 or (703) 308-0662.

cmk
September 18, 2001

C. Melissa Koslow
Primary Examiner
Tech. Center 1700

Attachment for PTO-948 (Rev. 03/01, or earlier)
6/18/01

The below text replaces the pre-printed text under the heading, "Information on How to Effect Drawing Changes," on the back of the PTO-948 (Rev. 03/01, or earlier) form.

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

1. Correction of Informalities -- 37 CFR 1.85

New corrected drawings must be filed with the changes incorporated therein. Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the Notice of Allowability. Extensions of time may **NOT** be obtained under the provisions of 37 CFR 1.136(a) or (b) for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

2. Corrections other than Informalities Noted by Draftsperson on form PTO-948.

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes.

Timing of Corrections

Applicant is required to submit the drawing corrections within the time period set in the attached Office communication. See 37 CFR 1.85(a).

Failure to take corrective action within the set period will result in **ABANDONMENT** of the application.